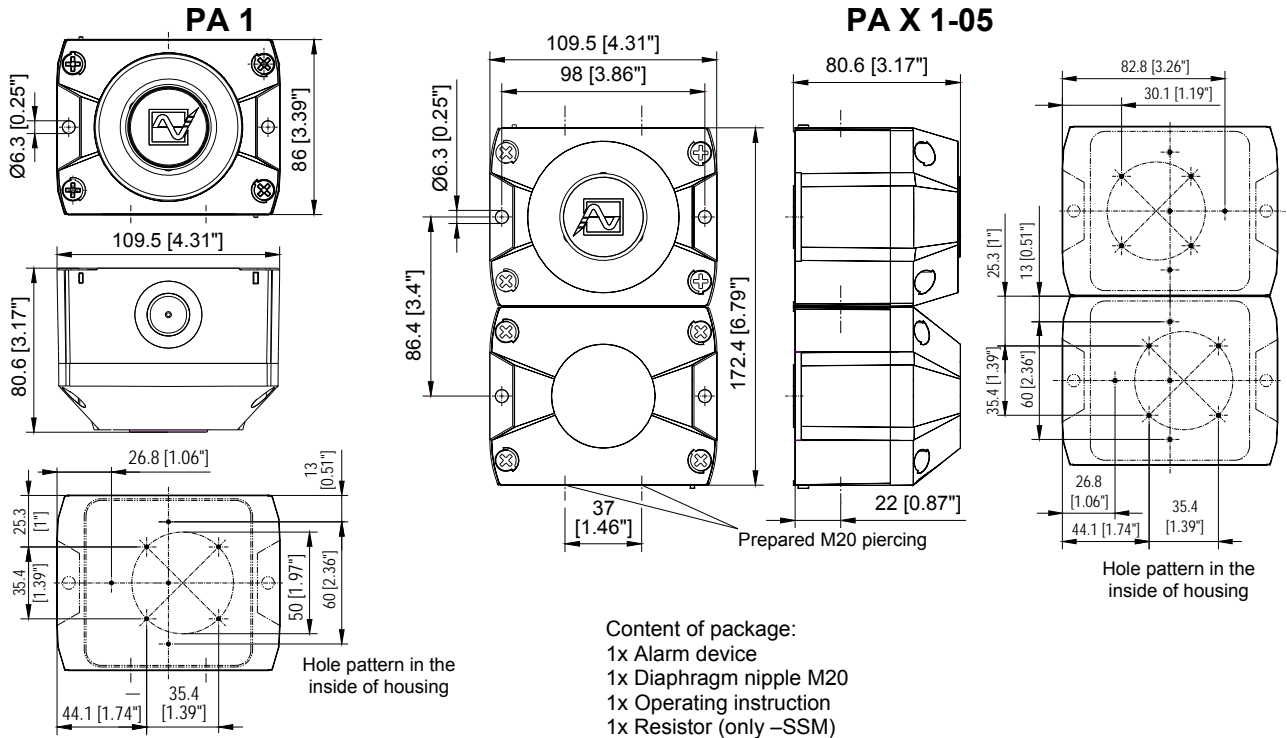



# PA 1 / PA X 1-05 Operating and installation instruction


## Dimensions



## Technical Data

	PA 1				PA X 1-05					
Nom. sound level					100dB (A) 1m					
Volume control					max. -12dB					
Tones					80					
Flash energy	-				5J					
Flash frequency	-				1Hz					
Rated voltage (limits see approvals)	24V DC or 12 – 48V DC	24V AC 50/60 Hz	115V AC 50/60 Hz	230V AC 50/60 Hz	12V DC	24V DC	48V DC	24V AC 50/60 Hz	115V AC 50/60 Hz	230V AC 50/60 Hz
Operating voltage range	10 - 57 V DC	18-30 V AC	95 – 127 V AC	195 – 253 V AC	10-15 V DC	18-30 V DC	40-57 V DC	18-30 V AC	95 – 127 V AC	195 – 253 V AC
Current consumption Sounder (max)	80 mA	150 mA	30 mA	16 mA	25 mA	70 mA	80 mA	150 mA	30 mA	16 mA
Current consumption Beacon (max)	-	-	-	-	700 mA	360 mA	170 mA	800 mA	120 mA	90 mA
Power consumption	12-48DC: 4W 24 DC: 2W	4,5 VA	4,5 VA	4,5 VA	8 W	11,5 W	11,5 W	34,5 VA	18,5 VA	25 VA
Duty cycle	100%									
Connection terminal	0,14 - 2,5mm <sup>2</sup> / AWG24 - AWG 14 (stranded)									
Resistance against impact	IK08 (EN50102)									
Ingress protection	IP66 (EN60529), Type 4 & 4x									
Protection class	II  Double insulated equipment									
Operating temp.	-40°C...+55°C									
Storage temp.	-40°C...+70°C									
Max. rel. Humidity	90%									
Cable entry	4x M20 (prepared)				5x M20 (prepared)					
Sealing range of grommet	7 – 13 mm With the use of cable diameters < 7 mm, a cable screw joint with sufficient ingress protection must be provided									
Material of housing	PC/ABS Blend									
Material of lens	PC									
Installation position	arbitrary									
Options	-SSM, (see page 11)									
Accessory	Sealing plug (Art-no. 28300000002)									
Lens colours	clear, white, yellow, amber, red, green, blue									

# Approvals

Approvals (valid for marked equipment)					
Construction Product Regulation (305/2011/EC)  	<b>PA 1:</b> VdS 0786-CPD-21182		<b>PA X 1-05:</b> 0786-CPD-21220		
			<b>PA 1</b>	<b>PA X 1-05</b>	
	Options		-SSM (24V DC)		
	Rated voltage		24 – 48V DC	24V DC	48V DC
	Operating voltage range acc. to EN54-3, EN54-23		18V – 57V Option: -SSM (18V – 30V)	18 - 30V	40 - 57V
	Lens colours of beacon		- red, clear		
	Tone		Compliant with the Construction Product Directive (89/106/EWG) 1200Hz-500Hz (Saw tooth) DIN/PFEER P.T.A.P. 500Hz-1200Hz (Slow whoop) 825Hz (Continuous) 660Hz (Intermittent tone) 800Hz/ 1000Hz (Alternating tone) 544Hz/ 440Hz (NF S 32-001)		
	Signaling area		EN54-3: see document 30303-005-1	EN 54-23 Category O: see document 30303-005-1	
	Environmental protection class		Type B		
	Installation position		arbitrary	Light faces down	
Testing takes place using the supplied diaphragm nipple and the outer fastening bores.					
VdS	<b>PA1:</b> G 212115, <b>PA X 1-05:</b> G 212188 / Data see Construction Product Regulation (305/2011/EC)				
GL	<b>61062-13 HH</b> Environmental Category C, H, EMC1				
MED	<b>61739-14 HH</b>				
CNBOP	<b>PA 1: 2015/2014</b>		<b>PA X 1-05: 2017/2014</b>		
UL, cUL		Rated Voltage	Audible-signal Appliance Fire Alarm Equipment ULSZ, ULSZ7	Audible and Visual signal Appliance General Signal Equipment UCST, UCST7 and UEES, UEES7	
	<b>PA 1</b>	24V – 48V DC (Fire Alarm Equipment) 12V – 48V DC (General Signal Equipment)	x Special application, limited operating voltage range 18 – 57V DC	x	
	<b>PA 1</b> <b>PA X 1-05</b>	24V AC 115V AC 230V AC	-	x	
	<b>PA X 1-05</b>	12V DC 24V DC 48V DC	-	x	

PATROL sounders and combined units **PA 1/ PA X 1-05** comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.

### UL/ cUL specifications:

Suitable for indoor and outdoor use. Signaling area: see document 30303-005-1.

#### Cable gland entries:

Conduit installation needs to be UL/ cUL listed fittings suitable for knockout openings. The supply wiring has to be enclosed in metal conduits for products for Fire Alarm Use.

According to CSA-C22.2 No. 205-M1983 clause 4.3.4 the connection is limited to max. three leads.

#### Installation:

The units shall be installed indoors or outdoors in accordance with the manufacturer's installation instructions as well as the National Electrical Code (NFPA 70) and the National Fire Alarm Code (NFPA 72) for the units evaluated for Public Fire Alarm applications in the U.S. In Canada, they shall be installed in accordance with the Canadian Electrical Code, Part 1 and the Standard for the Installation of Fire Alarm Systems CAN/ULC-S524-M91 for the units evaluated for Public Fire Alarm applications. The installation shall also be in a manner acceptable with the local authority having jurisdiction.

For audible application for Fire Alarm Service use both terminals for connection. Break wire run to provide Electrical Supervision (see UL 464 clause 39.1e). The tone no. 111 is to be used for evacuation use only (see UL 464 clause 39.1e)

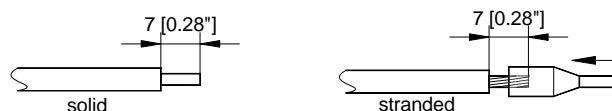
#### cUL directional characteristics for the horn:

AXIS	ANGLE	dBA
Horizontal	32 deg. left or right	-3
Horizontal	28 deg. left or right	-6
Vertical	32 deg. left or right	-3
Vertical	28 deg. left or right	-6

#### Min. Output sound pressure level: [dB(A)]

Type	Voltage	UL 464 dB(A) at 10 ft ++	CAN/ULc-S525-07
PA 1-24 DC	18V DC	77,1 (for tone 113)	86,2 (for tone 60)
Tone no. 2, 15, 60, 104, 131, 146, 111, 112, and 113 was used for this test.			

#### Connecting cables:



## Taking into operation

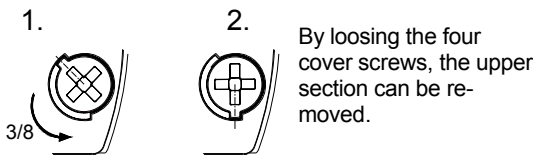
### Safety notes:

- Installation must be carried out by an electrician in compliance with the latest codes and regulations.
- Danger: High voltage may be present.
- Prior to opening, it must be ensured that no voltage is applied to the device.
- Before electrical connection, the supply voltage on the type plate is to be checked. The wrong operating voltage can lead to damages or to the destruction of the equipment.
- During installation it must be ensured that the connection cables are secured against tension and distortion. Please observe: The devices are not designed for portable use.
- CAUTION: When making installation, route field wiring away from sharp projections, corners and internal components.
- The opening of the bell mouth must not point upwards, especially in the case of use outdoors or in a particularly dusty environment.
- The function of the unit is only guaranteed if the upper and lower section is joined correctly.

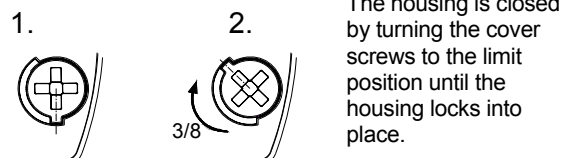
When using the sounder –beacon combination PA X 1-05:

- In order to prevent detriment to sight, continuously looking directly in the activated light is to be avoided.

### Opening the housing:



### Closing the housing

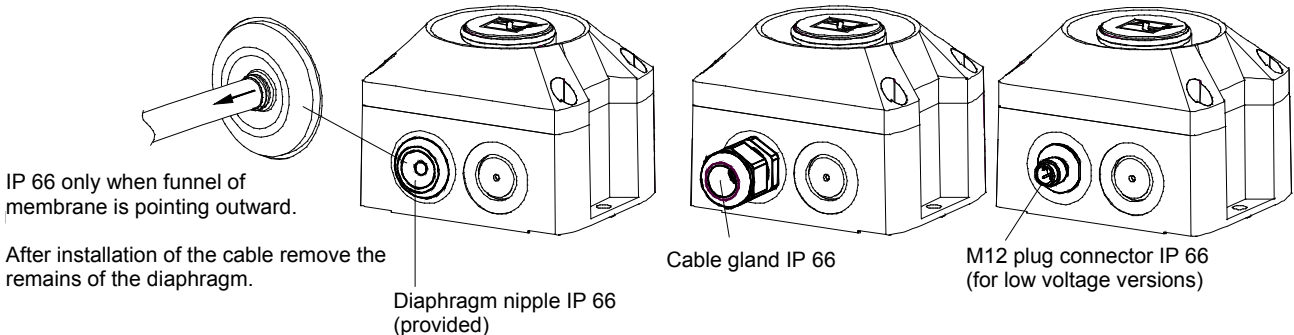


The unit is not closed when delivered.

Sealing plugs for the housing screws are available as accessories.

### Cable gland entries

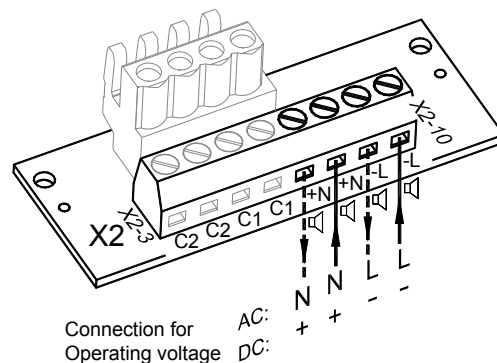
To guarantee the specified protection type, cable grommets with a protection type of IP 66 are to be installed at the openings provided for this purpose. The supplied diaphragm nipple can be replaced with a cable gland or with an M12 plug connection with a flange measurement of M20.



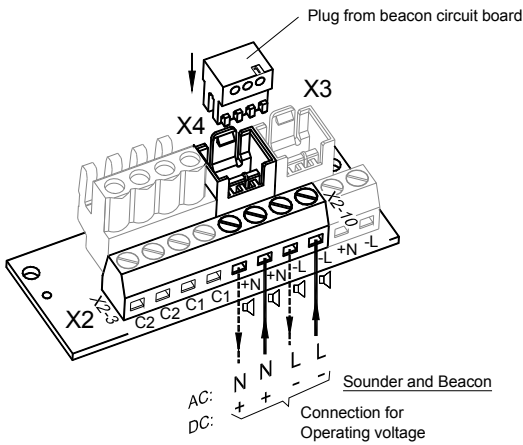
### Circuit board for electrical connection (located in the base section):

### Electrical connection and tone selection using external control C1 and C2

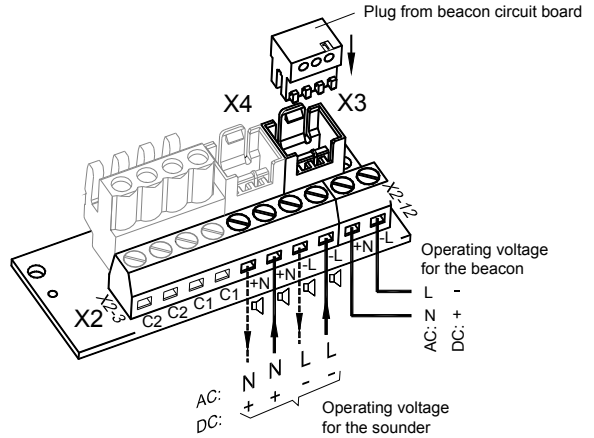
#### Terminal for operating voltage - Sounder:



Terminal for operating voltage - Sounder-beacon combination:



Common connection of beacon and sounder (Delivery status)

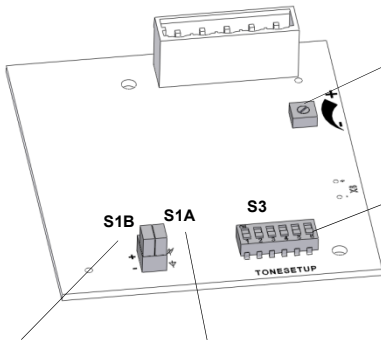


Separate connection of beacon and sounder

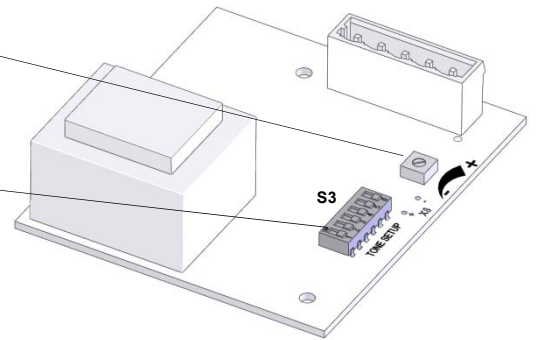
The desired tone can be selected using the tone selector switch S3 on the driver circuit board. The available tones are described in the tone table in the appendix. After establishing the supply voltage, the tone is generated.

**Driver circuit board of sounder (located in the upper section):**

**AC-Version**



**DC-Version**



Volume control  
Note:  
To be EN54-3 compliant, the volume control has to be set to the maximum position.  
Tone selector switch

**S1B**  
Selection of polarity of the control voltage for C1 and C2

**S1A**  
Bridging of blocking diode

	Diode not bridged Negative polarity <b>Factory setting</b>
	Diode not bridged Positive polarity
	Diode bridged Negative polarity
	Diode bridged Positive polarity

### Change of the tones by external control

For applications which require more tones than just the base tone, it is possible to provide up to three additional tone types with the use of the following electrical controls.

As a basic rule, the desired base tone (J, see tone table in the appendix) is set with the tone selector switch S3 on the driver board. The corresponding additional tones (C1, C2, C1+C2) can be gathered from the table "Selection of the tones".

### Tone selection with control input (TAS)

#### DC-Version:

When used with correct polarity, the tone selection takes place through the control inputs C1 and C2 on the circuit board. In the process, the supply voltage must always be applied together with the two control inputs. Switch S1A on the driver board is set to  $\nabla$  (Diode not bridged).

The selection of the polarity of the control voltage ("+" or "-") takes place with the switch S1B on the driver board.

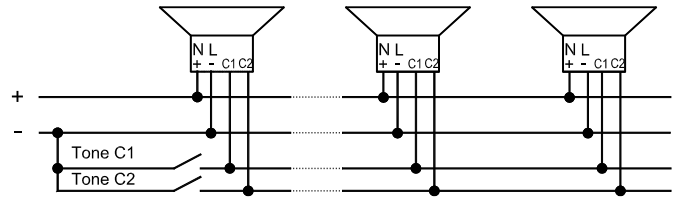
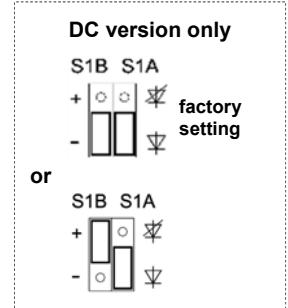
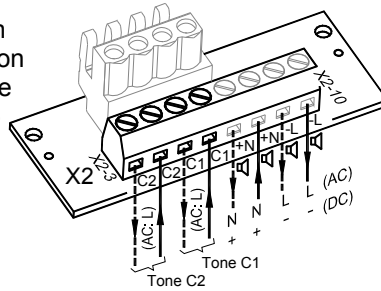
"+": positive control

"-": negative control (factory setting)

**Caution:** If the control voltage is greater than the supply voltage or the supply voltage is not applied, the operating current supply is provided through the control inputs. A corresponding load capacity must then be guaranteed.

#### AC-version:

In the AC version the tone selection takes place by connecting the phase "L" of the supply voltage to the control inputs C1 and C2. In the process, the supply voltage must always be applied together with the two control inputs.

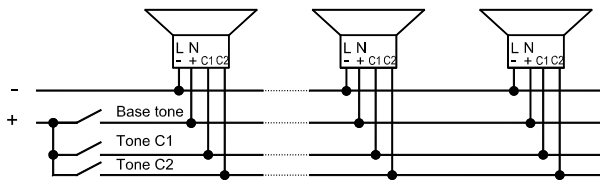
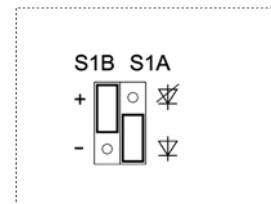
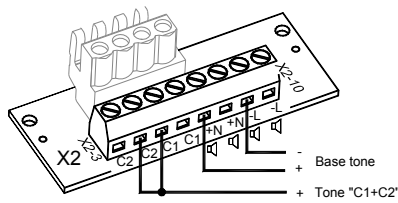
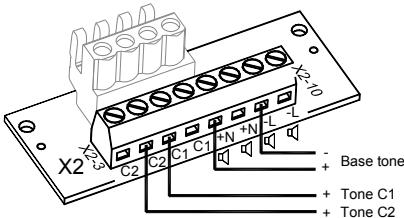


Example for DC "-" -control

### Tone selection with supply through control input (TAV) - for all DC versions

The sounder can be supplied with operating voltage through the control inputs C1 and C2 on the circuit board. Supply and tone selection thus take place simultaneously.

The minus pole of the sounder must be connected. With connection of the positive voltage to the plus pole of the circuit board, the base tone (J) is generated; with connection of the positive voltage to C1 or C2 the corresponding tone is selected. With simultaneous connection of the positive voltage to C1 and C2 the tone "C1+C2" is selected. The switch S1B on the driver board must be set to "+".

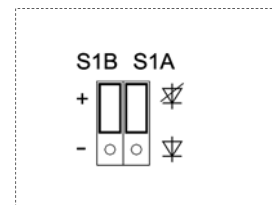
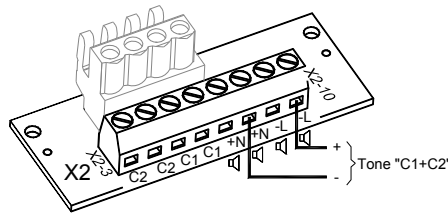
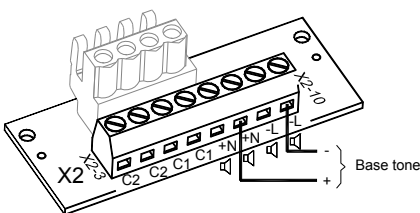


Connection example

### Tone selection through pole reversal (TAR) - for all DC versions except for option -SSM

If the switch S1A on the driver board is set to  $\nabla$  (diode bridged), the tone "C1+C2" can be selected in addition to the base tone through pole reversal. The switch S1B must be set to "+".

**The control inputs C1 and C2 may not be switched on the circuit board.**



### Option –SSM (Soft-Start-Module) (24V DC only):

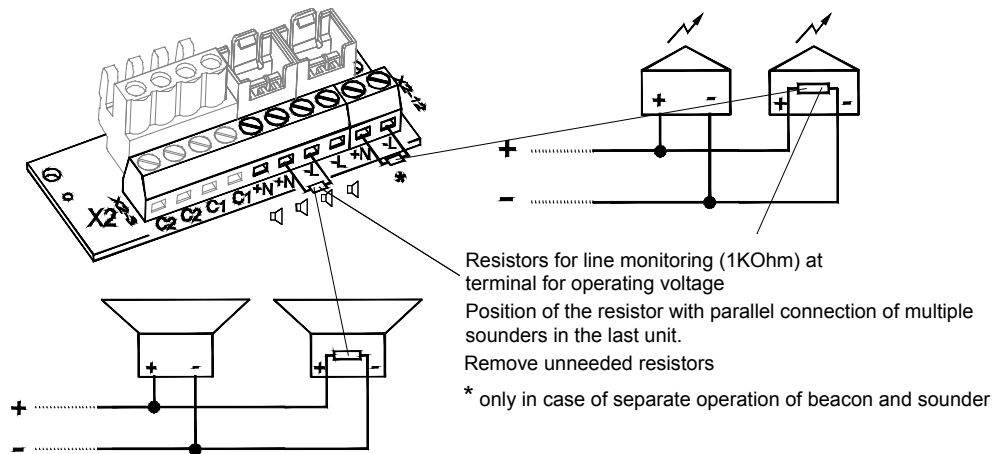
- Limiting of the switch-on current peak to:



- Connection of the operating voltage to the equipment starts at >7V  
- Resistance for the line monitoring mounted.

Operating voltage range: 18V – 30V DC

### Connection of a resistor for line monitoring:



### Maintenance, Service and Ordering Spare Parts

The device does not require any special maintenance.

External cleaning should be done with a mild soap solution without the use of solvents.

The device may only be operated in the undamaged state within the specified rating.

Conversions, alterations, improper and inadmissible use as well as the non-observance of the notes in these operating instructions shall render the warranty null and void.

Components may be replaced only by original spare parts.

As a matter of principle, repairs are to be carried out in the manufacturing works.